

REMARKS

The Examiner is thanked for the careful examination of the application. However, in view of the foregoing amendments and the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

Restriction:

In response to Applicants traverse of the restriction requirement, the Examiner has appeared to modify the definition of the various groups. The Examiner now appears to be taking the position that the difference between the group I claims and the group II claims is that the group I claims includes a dielectric member "which is not a structural claim limitation of group II". The Examiner apparently now uses the presence of "a dielectric member" to not consider the subject matter of claims 21-26. However, only claims 21 and 23 define a dielectric member or ring. The other claims 22, 24, 25, and 26 do not include such a feature. Accordingly, the Examiner is requested to consider at least claims 22 and 24-26.

Applicants continue to submit that the Examiner has not identified reasons as to why the two identified species are either independent or distinct from each other. The Examiner has merely identified a structural limitation in one group that is not present in the other group. However, the Examiner has failed to set forth adequate reasons as to why the two species are independent or distinct from each other as specifically required in MPEP § 803.

Accordingly, the Examiner is respectfully requested to either examine all of the pending claims or to provide the requisite reasons for insisting on the restriction.

Drawings:

The Examiner has requested Applicant to amend Figures 10 and 11 by labeling them as prior art. However, it is not clear whether or not the subject matter of Figures 10 and 11 is prior art. Applicants have not admitted that the subject matter of Figures 10 and 11. Although it is possible that the subject matter of Figures 10 and 11 is prior art, applicants are not aware of a specific prior art teaching of this subject matter. Accordingly, absent evidence that the subject matter of Figures 10 and 11 is clearly prior art, Applicants do not consider such a request appropriate at this time.

Claim Rejections - 35 U.S.C. § 112:

With regard to the description of the gap in claim 14, appropriate amendments have been made to more clearly define the gap as it extends between the metal plate and the target and between the metal plate and the cathode. Accordingly, in view of the foregoing amendments, Applicants submit that the claims 14-20 now fully comply with 35 U.S.C. § 112, second paragraph. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims under 35 U.S.C. § 112, second paragraph.

Art Rejections:

Claims 14-16 and 18 have been rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by the admitted prior art of Figure 10 and the corresponding disclosure relied upon in the application. As set forth above, applicants have not admitted that the subject matter of Figure 10 is prior art. Nevertheless, claim 14 has been amended to distinguish over the subject matter of Figure 10.

In response to this rejection, claim 14 has been amended to clarify that the metal plate is mounted in the processing chamber adjacent to the cathode but only in a location outside of the given axial extent of the cathode. In other words, the metal plate is not directly opposite the cathode as regards to the axial extent of the cathode. As set forth in paragraph 29 of the specification, the present arrangement of the metal plate and the cathode is designed to reduce stray capacitance between the cathode and the metal plate.

The subject matter of Figure 10 contrasts with the subject matter of claim 14 in that the ring 24 in the Figure 10 disclosure is included within the axial extent of the cathode, and thus does not include the advantages offered by the present invention.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 14-16 and 18 based on the technology of Figure 10.

Claims 19 and 20 have been rejected under 35 U.S.C. § 103(a) as being obvious over the prior art of Figure 10 and the corresponding disclosure in the instant application in view of JP 09-087837. However, the teachings of JP '837 do not overcome the deficiency of the rejection of claim 14 based on the technology of Figure 10. Accordingly, the rejection of claims 19 and 20 should also be withdrawn.

Claim 17 is rejected under 35 U.S.C. § 103(a) as being obvious over the technology of Figure 10 in view of JP 57-194254. However, the disclosure of JP '254 does not overcome the deficiency of the rejection of claim 14 based on the technology of Figure 10. Accordingly, the rejection of claim 17 should also be withdrawn.

Claims 14-16 and 18 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,167,789, hereinafter Latz. However, in view of the amendment to claim 14, the teachings of Latz are not relevant. Specifically, the metal ring 34 extends in the same axial extent as the plate 4. If the electrode 5 of Latz is considered the cathode in claim 14, Applicants submit that the electrode 5 is not "inside the processing chamber", as required by claim 14.

Accordingly, amended claim 14 is clearly patentable over Latz.

Claims 15, 16, and 18 depend from claim 14, and are thus also patentable over Latz.

Claims 19 and 20 have been rejected under 35 U.S.C. § 103(a) as being obvious over Latz in view of JP '837, and claim 17 has been rejected under 35 U.S.C. § 103(a) as being obvious Latz in view of JP '254. However, the disclosures of JP '837 and JP '254 do not overcome the deficiency of the rejection of claim 14 based on Latz. Accordingly, claims 17, 19, and 20 are also patentable over the applied prior art.

To further define the protection of which Applicants are entitled, new claims 27 and 28 are submitted herewith. The new claims depend from claim 14, and are thus patentable over the cited prior art at least for the reasons set forth above with respect to claim 14.

Accordingly, in view of the foregoing amendments and remarks, the Examiner is respectfully urged to reconsider and withdraw the outstanding rejections.

New claims 27 and 28 depend from claim 14 and are thus patentable at least for the reasons set forth above with respect to claim 14.

Upon allowance of claim 14, the Examiner is respectfully requested to consider all claims that depend therefrom, including new claims 21 - 28.

In the event that there are any questions concerning this amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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Attachment to Amendment dated March 7, 2003

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Paragraph [0027]

[0027] Figure 3 is a magnified sectional front view showing the vicinity of a section through the dielectric ring 50 and the metal ring 52. The inner circumferential face of the dielectric ring 50 is in contact with the outer circumferential face of the cathode 38. The dielectric ring 50 projects downward by a distance "a" from the lower face of the cathode 38. This part of the dielectric ring 50 extending below the lower face of the cathode 38 is referred to as the projecting part of the dielectric ring 50. The hollow circular plate-shaped metal ring 52 is mounted on the lower face of this projecting part. The metal ring 52 is 3 mm thick, although other thicknesses may be used. The metal ring 52 is arranged parallel with the surface of the target 48. The distance between the upper face of the metal ring 52 and the lower face of the cathode 38 is the same as "a". The inner circumferential edge 64 of the metal ring 52 projects inward by a distance "b" from the inner circumferential face 62 of the dielectric ring 50. Because the metal ring 52 projects inward from the dielectric ring 50 in this way, it becomes difficult for film to be deposited on the inner circumferential face 62 of the dielectric ring 50. The inner circumferential edge 64 of the metal ring 52 is spaced apart from the outer circumferential face of the target 48 by a distance "c". The outer circumferential edge of the metal ring 52 is in contact with the inner face of the side wall of the processing chamber 34. In this embodiment, $a = 2.5 \text{ mm}$, $b = 3 \text{ mm}$ and $c = 2.5 \text{ mm}$, although other distances may also be used. Therefore, the gap between the metal ring 52 [on the one hand] and the cathode

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38 (distance a) is 2.5 mm and the gap between the metal ring 52 and the target 48 [on the other] is 2.5 mm (distance c [and distance a]). In addition, the depth of the gap, which is the shortest path extending from the entrance of the gap to the inner circumferential face 62, is the sum total of the thickness of the metal ring 52 (3 mm) and the length by which the metal ring projects ($b = 3$ mm), and is approximately 6 mm. In this way, because the width of the gap is 3 mm, or less, and the depth of the gap is 3 mm, or more, plasma does not enter the gap. Consequently, film is not deposited on the inner circumferential face of the projecting part of the dielectric ring 50, and the cathode 38 and target 48 do not short-circuit to the metal ring 52 (in other words there is no short-circuiting to the processing chamber 34).



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Marked-up Claim 14

14. (Twice Amended) A high frequency sputtering device, comprising:

a processing chamber;

a high frequency power supply;

a cathode inside the processing chamber, the cathode being electrically insulated from the processing chamber and connected to the high frequency power supply, the cathode extending only along a given axial extent of the processing chamber;

a target mounted on a first side of the cathode; and

a metal plate mounted in the processing chamber adjacent to the cathode but only in a location outside of the given axial extent of the cathode, the metal plate having an opening in a central portion thereof, wherein an outer circumferential edge of the metal plate is electrically grounded to the processing chamber;

the metal plate is arranged so as to form a gap having a first portion between the metal plate [on the one hand] and the cathode and a second portion between the metal plate and the target [on the other hand], wherein the gap is sufficiently narrow and sufficiently long so as to substantially prevent plasma from passing through the gap.

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